

REMARKS

Claims 1 and 3-15 are currently pending in the above-identified patent application; claims 6-15 were withdrawn from consideration.

In the subject Office Action, the Examiner rejected claims 1 and 3 under 35 U.S.C. 102(b) as being clearly anticipated by Shigeru et al. (JP 2000-083389), since the Examiner asserted that Shigeru et al. shows an electromechanical actuator (1) comprising a high-conductivity conjugated polymer element (1) other than a polypyrrole element having an electrical conductivity of ≥ 150 S/cm, wherein said element actuates by linear extension/contraction (See, e.g., line 1 of SOLUTION), and that the high-conductivity conjugated polymer is prepared from a monomer selected from the group consisting of aniline (See, e.g., line 2 of SOLUTION), thiophene, phenylene, vinylene and derivatives thereof.

The Examiner continued by rejecting claims 4 and 5 under 35 U.S. C. 103(a) as being unpatentable over Shigeru et al. in view of Hiroshi et al. (JP 2000-261054) since the invention of Shigeru et al. does not discuss derivatives for the high-conductivity conjugated polymer. However, the Examiner stated that Hiroshi et al. notes in the SOLUTION that an actuator of a resin composition which is a copolymer acrylic ester having an alkyl group whose carbon number is 2, and that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the material of Hiroshi et al. in the device of Shigeru et al. since this is an equivalent material as noted by applicants in their material options in their claims. Additionally, the Examiner continued, it would have been obvious to employ the material of Hiroshi et al. for expansion and contraction when actuated because such motions are capable of doing useful work as is clear from Shigeru et al.

The Examiner then concluded that it would have been obvious to one having ordinary skill in the art at the time the invention was made to select a derivative of high-conductivity conjugated polymer for the actuator material since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

The Examiner noted that applicants offered at least 11 possible materials for their actuator.

Applicants respectfully disagree with the Examiner for the reasons to be set forth hereinbelow. Reexamination and reconsideration are requested.

The Examiner cited Armgarth et al. (U.S. Patent No. 6,587,250, but did not apply this patent to the subject claims. Therefore, applicants believe that no further response is required with regard to Armgarth et al.

Applicants have reviewed lines 1 and 2 of the SOLUTIONS of Shigeru et al., but fail to find mention of either the use of polyaniline having an electrical conductivity of ≥ 150 S/cm, or that the actuation by element (1) is a linear extension/contraction. Therefore, Applicants respectfully disagree with the Examiner that Shigeru et al. clearly anticipates the subject claimed invention. Nowhere in Shigeru et al. is the relationship between electrical conductivity of the conjugated polymer and linear extension/contraction mentioned. Further, neither the synthetic procedure for generating the conducting polymer, nor the resulting electrical conductivity are mentioned, so that one might deduce these properties.


In fact, in paragraph 0035 of Shigeru et al. it is stated: "...the force of the elongation direction will act according to the bias devices 5, such as a spring" Thus, Shigeru et al. states that the actuator of Shigeru et al. requires a bias device in order for it to follow a particular path of extension and contraction. Applicants therefore believe that not only does Shigeru et al. fail to anticipate the present claimed invention, Shigeru et al. teaches away therefrom.

Since Shigeru et al. teaches away from the present claimed invention, applicants respectfully believe that the Examiner has incorrectly combined the Shigeru et al. reference with Hiroshi et al. in the rejection of claims 4 and 5 under 35 U.S.C. 103(a), and that the Examiner has therefore failed to make a *prima facie* case for an obviousness-type rejection.

For the reasons set forth hereinabove, applicants believe that claims 1 and 3-5, are in condition for allowance or appeal, the former action by the Examiner at an early date being earnestly solicited. Reexamination and reconsideration are respectfully requested.

Respectfully submitted,

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